that institution has as good a well as any yet struck in the city. The hole is six inches in diameter and descends into the earth 542 feet.

Two hundred pounds pressure to the square inch is equivalent to thirteen atmospheres.

A correspondent writing from Erie, Pa., adds the following:

Our gas wells are still going down with success. We have about a dozen completed, and half as many more being bored.

Every one so far has struck heavy veins of gas.

Private parties are now boring to get fuel and light for their dwellings.

Sulphur in Coal Gas.

Dr. W. Odling, Fullerian Professor of Chemistry at the Royal Institution, in a lecture delivered on the 2d of June, shows most conclusively the sulphur bugbear to be all moonshine. He says:—

"I am altogether at issue with the public when they maintain that the sulphur of gas produces, by its combustion, oil of vitriol, or that the amount of sulphur ordinarily contained n gas is of any consequence whatever, and a little consideration will, I think, satisfy you of the soundness of this position. We will assume that coal gas contains not 20, but 40 grains of sulphur in 100 feet, a quantity at any rate greatly exceeding the reality. Now, making another extravagant assumption, that the whole of these 40 grains of sulphur would be completely burned—and in reality they would be burned very incompletely—they would furnish by their combustion 80 grains of sulphurous acid gas. This quantity of the produced sulphurous acid would occupy, at ordinary temperatures, about $\frac{1}{15}$th part of a cubic foot; and since 100 cubic feet of our coal gas gives $\frac{1}{15}$th of a cubic foot of sulphurous acid, 1,500 feet of coal gas would be required to furnish one cubic foot of the acid, even upon the extravagant assumption we have purposely made. But the combustion of 1,500 feet of coal gas would produce something besides sulphurous acids It would produce at least 1,000 cubic feet of carbonic acid, and, in addition to its dilution with other gases and vapors, we should have our sulphurous acid diluted by 1,000 times its volume of carbonic acid. Now, if we can get at the proportion of carbonic acid in the atmosphere of a room highly illuminated with gas, and take the thousandth part of that proportion, we shall be able to form some notion of the amount of sulphurous acid present. You will remember that the amount of carbonic acid furnished by the breath of one individual is equal to that furnished by two 3-feet gas-burners, and that the maximum amount of carbonic found in the atmosphere of a crowded theater was 0·32 per cent. Now, if in addition to our previous unreasonable suppositions, we further suppose that an atmosphere contains 0·2 per cent of carbonic acid furnished by gas combustion, you will see that the whole matter becomes a *reductio ad absurdum*—that we might actually have one half-millionth part of sulphurous acid present in the air of a gas-lighted room.

The Hottest Summer for a Century.

The Hartford *Courant* says that, according to the weather records of Yale College, the past has been the hottest summer for ninety-two years. That is as far back as the Yale record enlightens us, and no centenarian who was running around barefooted during the summer of the eight previous years remembers anything hotter; we may, therefore, safely call this the hottest summer for a century. From July 10 to August 15, 1870, the mean daily temperature was, at New Haven, 85 degrees; and no season, at least since 1778, has shown so many consecutive hot days. Our highest temperature this summer was (July 17) noted at 98 degrees, and this has been exceeded only four times during the period above indicated; at New Haven the thermometer rising to 100 degrees one day each year in 1784, 1800, and 1845. In 1798 it reached 101.

Portable Cider Mills and Presses.

We are informed by dealers that never before this fall was there such a wide demand for machines of this class as now. This not only indicates that there is an unusually large apple crop this year, but it may suggest to inventors that there is still room for competition in this extensive field. There is no good reason why hand cider mills should not be as common among farmers as churns.

APPLICATIONS FOR THE EXTENSION OF PATENTS.

"EDGE KEYS" FOR MAKING AND POLISHING THE EDGES OF BOOT AND SHOE SOLES.—George C. Todd, Lynn, Mass., has petitioned for the extension of the above patent. Day of hearing Nov. 9, 1870.

RAILROAD CAR SEATS AND COUCHES.—Theodore T. Woodruff, Philadelphia, Pa., has applied for an extension of the above patent. Day of hearing Nov. 16, 1870.

RAILROAD CAR SEATS AND COUCHES.—Theodore T. Woodruff, Philadelphia, Pa., has applied for an extension of the above patent. Day of hearing Nov. 16, 1870.

METHOD OF CLAMPING CUTTERS IN CUTTER HEADS FOR PLANING MACHINES.—Jonathan P. Grosvenor, Lowell, Mass., has petitioned for an extension of the above patent. Day of hearing Nov. 16, 1870.

Inventions Patented in England by Americans.

[Compiled from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHS.

2,211.—STEAM GENERATOR.—N. H. Barbour, New York city. August 9, 1870.

2,248.—GENERATING GAS FROM PETROLEUM.—A. I. Ambler, Washington, D. C. Aug. 12, 1870.

2,258.—MACHINERY FOR COMPRESSING AIR.—C. Barleigh, Fitchburg, Mass. August 13, 1870.

2,274.—NUT-LOCKING WASHER.—W. H. Van Cleve, Ypsilanti, Mich. Aug. 1870.

2,286.—CARTRIDGE.—F. D. Draper, Boston, Mass. August 18, 1870.

2,294.—DEVICE FOR LUBRICATING AND EXCLUDING DUST FROM JOURNALS.—E. Von Jeinsen and J. M. McDonald, San Francisco, Cal. August 19, 1870.

NEW BOOKS AND PUBLICATIONS.

RAILWAY MANUAL OF THE RAILROADS OF NORTH AMERICA FOR 1870–71.

This work, compiled by James H. Lyles, has just been issued by Messrs. Lindsay, Walton & Co., No. 56 John street, this city. It contains a list of all the railroads of the country, showing their financial condition, mileage cost, earnings, expenses, and organization. The statistics are obtained from returns furnished by the Companies, and are valuable to those who are immediately interested in the development and progress of our railway system.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address correspondents by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at $1·00 a line, under the head of "Business and Personal.

All reference to back numbers should be by volume and page.

D. R. V., of Vt.—To extract honey from the comb, cut the combs in a horizontal direction into small pieces and place them in a sieve over an earthen jar. Draining may take two or three days, but the greatest portion and the best quality will be drained off in a few hours When all that can be got by draining is obtained, the combs may be pressed by the hand, but the honey so obtained will be inferior both in quality and color, as a portion of bee bread would be pressed through the sieve. To get honey of the finest quality strain the combs from the outside of the hives by themselves, keeping the first drainings separate, as the combs from the center of the hives are usually darker colored, and the honey not so good. They should be put to drain in a warm place near a fire. The remainining combs can be made into wax.

L. P. D., of Tenn.—The most common impurities in nitric acid are sulphuric acid and chlorine. You can purify the acid by distilling it with nitrate of potassa. Let the vapors pass into a cool receiver, and test the condensed acid for chlorine till no trace of chlorine or sulphuric acid appears; then collect for use till only a small quantity remains in the retort. Test for chlorine with nitrate of silver, and for sulphuric acid with nitrate of baryta, first diluting with water. When these substances cause no turbidity the acid is pure enough for chemical purposes.

C. M. G., of Iowa.—To spread gums or cereous substances over leather and cloth for plasters it is usual to employ what is called a plaster spatula. This instrument is a hollow metal box having one side flat and smooth like a sad iron, and in its interior is placed a heated piece of iron; or it may be heated with gas, a flexible tube being employed to convey the gas to a small burner in the box. The instrument has a metallic rod extending from one end provided with a wooden handle by which the manipulation is performed. In large manufactories there are machines which do this kind of work.

R. T. V., of Ky.—The solvents of amber are, besides various hydrocarbons, alcohol, ether, and linseed oil. The latter is the solvent used in making amber varnish. Amber is but difficultly soluble in alcohol and ether. In dissolving it with linseed oil it is usual to accelerate the process by heat. Amber burns like other gum resins.

L. S., of N. H.—Bay rum is made by distilling alcohol with the leaves of the bayberry tree—*Myrcia acris*—not the leaves of the bay tree—*Laurus nobilis*—as you suppose. The bayberry tree is a native of Jamaica and other West India islands.

E. P. N., of Fla.—The following is a recipe for cleaning brass: Rub some bichromate of potassa fine, pour over it about twice the bulk of sulphuric acid, and mix this with an equal quantity of water. Don't apply it with your fingers. The dirtiest brass is cleaned in a trice. Wash immediately in plenty of water, wipe it, rub perfectly dry, and polish with powdered rotten stone.—The expense of binding SCIENTIFIC AMERICAN is $1·50 each volume.

W. H., of La.—Polishing horn is done in large establishments by buffing with sand and oil and finishing with rotten stone and oil. Trent sand—so called from the name of a small river where it is obtained—is used in the Sheffield, England, factories. It is a very fine and sharp sand, and is prepared for use by calcining and sifting. Similar sand is found in the beds of many American rivers.

J. W. H., of N. Y.—Your solution of Problem 1, page 71, current volume, employs a pitman, not allowed by the conditions. Your solution of Problem 2 will not work without a fly wheel on the driven shaft to carry it over the dead point, and fly wheels are prohibited.

Mrs. L. C., of ——.—Soluble glass will cement broken glass so that it will hold cold water. Hot water will be apt to open the joint. Use it of the consistence of varnish, and warm it, as well as the parts to be joined, as much as can be done without cracking. Let stand some days before using. Use as small a quantity as possible to cover the edges to be joined.

T. D. F., of Mich.—The ghost-like beams of electric light dancing among clouds is a manifestation of northern lights often observed. The apparent nearness was undoubtedly the result of reflection.

H. F., of Ind., wishes results of experience in the use of electric apparatus with platina points for the prevention of scale in steam boilers.

T. B., of Ohio., wants a recipe for a good marking ink, black or blue, especially adapted to marking show cards and paper packages. The common inks in use for this purpose do not satisfy his requirements.

L. G., of Mass.—The accepted horse power of the present day is a power that will raise 33,000 lbs. one foot in one minute.

D. J. B., of D. C., wants to know how he can fasten emery to cast iron for polishing or cutting purposes.

J. H., of N. Y., wishes to know the process employed by manufacturers of gold watch cases in giving them their final finish. Can any of our correspondents give this information?

J. R., of Va.—According to Knapp nicotine may be extracted from tobacco, without injuring the structure of the leaf, by passing slowly through it during the process of curing the vapor of ammonia.

J. W. H., of Iowa.—The mineral you send is a species of slate. Its presence is not a certain indication of coal.

R. G., of La.—Frequent melting improves rather than injures glue. The deterioration in the adhesive quality of the glue you describe could not have arisen from this cause.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

STONE ADZ.—William Covart, Claytonville, Kansas.—This invention relates to improvements in tools for cutting and dressing stone, and consists in a broad tool with a smooth or continuous cutting edge at one end, with lips at each side for cutting the "draft," and with a notched edge, at the other end, for "pointing off," the said edges being in a plane perpendicular to the handle, which is applied at the center.

SAWING MACHINE.—J. T. Baggs, Bridgeport, Ohio.—This invention relates to improvements in sawing machines, and it consists in so hanging the saw for cutting wide grooves, making rabbets, and the like, as that it will wabble, by means of collars, with the outer ends curved, on radii extending to the center of the saw, and with holes widening on two sides, from the inner ends outward, to admit of adjusting the said collars obliquely on the mandrel.